REMARKS

Claims 12-13, 16-28 and 32-33 remain in this application.

The examiner has rejected claims 12, 28 and 33 under 35 USC 112, first paragraph, saying that the specification does not provide enablement of the invention as claimed, that the Faraday cages formed by the slots will inhibit coating. It is pointed out that the entire disclosure of this application is directed toward overcoming this very problem. The fact that coating stator or rotor slots is a problem is set forth in the background section of this application. Then, as described throughout the rest of the specification, the use of larger particles in a spray coating process is applicant's solution to this problem. The gist of the entire disclosure is the use of such larger particles for coating, especially the interior of the slots. And as is clearly recited throughout the specification, the use of these larger particles does provide a way that a spray coating method can be used to coat the interior of the slots to a sufficient thickness so as to form a satisfactory insulation layer, even on these interior surfaces. The examiner has also rejected claims 12, 28 and 33 under 35 USC 112, as indefinite. In this rejection the examiner has indicated that the former rejection under 35 USC 112 is now overcome, but that now the phrase "with difficulty" is a relative recitation, and that the word "can" should be made a positive recitation. The examiner is thanked for his indication that the prior 35 USC 112 rejection has been overcome. Applicant appreciates the examiner's further suggestions. In response thereto, applicant has amended claim 12 to overcome the present rejection under 35 USC 112. Similar changes have also been made to claims 28 and 33.

The examiner has further indicated that claim 28 is vague and indefinite because "it contains method limitations in an apparatus claim....". This rejection is not understood. While method limitations are not usually limiting to an apparatus claim, they do not necessarily make apparatus claims indefinite. In the case of claim 28, this is clearly true. Claim 28 recites "An apparatus for performing the method ..." wherein the method is recited to have several steps mentioned in the claim. But these steps do not make the apparatus which is being claimed indefinite. Line 13 of claim 28 continues by reciting " ... the apparatus comprising ... ", and from that point on the claim recites apparatus. This recitation of apparatus is not unclear.

Further on in this rejection the examiner has stated "Applicant cannot properly claim a combination of a device and a **material worked upon**". As stated, this part of the rejection does not make sense because there is no "material worked on" recited in claim 28.

The examiner has again rejected claims 12-13, 16-27 and 33 as unpatentable over Hapsburg-Lothringen in view of Hopeck, Otani et al. and Matsuzaki et al. Applicant again points out that claims 12, 28 and 33, and thus all of the claims in this application, include the recitation that the axial slots form a Faraday cage, the interior of which is a field-free space, which space, prior to applicant's invention, could not be coated by a spray coating method.

Prior to the present invention, the surfaces of such an interior space could be coated to a sufficient thickness only with great difficulty, and particularly not by a spraying method as recited in the claims of this application. Each of the claims recites that the particles used to coat the body are of a size of at least 150 μm, which size is immensely larger than is taught by any of the prior art for a spraying method. By the use of such much larger particles as taught for the first

time by applicant, the coating, even within the axial slots, reaches a thickness of between 1.0 and 2.0 mm before too much charge is carried into the slots so that the charge prevents further accumulation of particles.

In other words, all of the claims now clearly recite an apparatus or a method in which the coating is built up to between 1.0 and 2.0 mm, even within the Faraday cage axial slots of the ferromagnetic body. None of the cited prior art has, or in any way teaches, such a combination of limitations.

And just as importantly, the prior art does not teach the individual parts of this invention in such a way such that a person skilled in the art would be lead to combine them and thus come up with the presently claimed invention.

Within the bounds of the disclosure of Habsburg-Lothringen, the only method for coating of an armature of an electric motor which is sufficiently disclosed so that it could be considered to be a teaching of the method, is a "fluidized bed electrostatic coating" method, see column 4, lines 45 +. While Habsburg-Lothringen do mention other coating methods, none of these other methods are disclosed with any detail, certainly not with sufficient detail so as to serve as a teaching for one skilled in the art to be able to practice such other methods. In particular, Habsburg-Lothringen does not serve as a teaching of how to coat an article, particularly an article which has interior slots which form a Faraday cage as for example the rotor and stator of a dynamo electric machine, by anything other than a fluidized bed method of coating.

This fluidized bed method is also described in the background section of the present application at page 2, paragraphs 5 and 6. However, it is pointed out that **with such a method,**

even as disclosed by Habsburg-Lothringen, **it is not possible to create a relatively large layer thicknesses such as between 1.0 and 2.0 mm, particularly not within the Faraday cage created by the interior of the axial slots of a ferromagnetic body of a dynamo electric machine.**

Habsburg-Lothringen include an indication that their method is not limited to the fluidized bed method. But this reference does not provide any indication that a "direct powder spraying onto the body" can be used to achieve a sufficiently thick coating of between 1.0 and 2.0 mm. And certainly Habsburg-Lothringen does not teach that such a spraying method could achieve a sufficient thickness within the stator slots. This requirement is something that is now recited by all of the claims.

Moreover, while Habsburg-Lothringen may well wish that their invention could include a spray coating method, there simply are no details included in their disclosure of how such a spray coating might be accomplished. The only complete teaching within Habsburg-Lothringen is how to coat by a fluidized bed method.

Any mention of spraying by Habsburg-Lothringen is not a complete teaching which could be used by one skilled in the art to learn how the interior of such slots could be successfully coated by spraying.

The Habsburg-Lothringen disclosure is not usable for anything other than a teaching that perhaps a spray coating would be nice. But Habsburg-Lothringen do not teach any details whatsoever of how such a coating would be accomplished.

It was not until the advent of applicant's invention that it is now known how to accomplish a spray coating which provides sufficient thickness. It is only applicant's teaching of spray coating with larger particles which will result in building up a coating thickness within the slots of a stator or rotor so that the coating will provide the necessary insulation.

Hopeck describes a coating method in which connecting elements 16 and 18 of a dynamo-electrical machine are coated with epoxy powder by means of spray methods, and that layer thicknesses of up to 0.020 inches are produced. But it must be pointed out that the connecting elements of Hopeck are exterior pieces only, Hopeck does not in any way teach coating inside a slot.

Hopeck discloses a dynamo electric machine 10 of the type having conductors which are hollow and carry coolant within the conductors. For visualization purposes, these conductors are of the nature of, and are at least similar to, what would be obtained by making conductors of 1/4 inch copper tubing. The conductors run through the machine and the ends of the tubes are left exposed. Each of these ends must be connected to another conductor by loop connections 16 and 18, which are the elements being coated by Hopeck.

Thus, the articles being coated by Hopeck are essentially, as stated by Hopeck at column 3 lines 15-20, tubing elbows etc. The articles coated by Hopeck do not include reentrant shapes which are at all similar to the interior of slots in a dynamo electric machine as taught by applicant. From Hopeck one skilled in the art does not find any indication whatsoever that the spray method could be used for coating the surfaces which are inside the slots of a dynamo electric machine. This is precisely because the slots act as a Faraday cage. At most Hopeck coats

what may be a "U"-shaped member, which member is very wide at bottom of the "U." This is a shape which does not at all equate to the slots of a dynamo electric machine.

Without the knowledge taught by applicant in the present application, coating thicknesses of this magnitude are simply not possible within the slots of a motor frame. Even though Hopeck gives a measurement for the layer thickness of up to 0.045 inches, this measurement does not refer to the coating of the surface of the interior of stator or rotor slots. The thickness of the coating of Hopeck relates only to external connecting elements.

Applicant's slots form a Faraday cage which would preclude such a thickness of a spray coating from building up within them without some further knowledge beyond the teachings of Hopeck. The knowledge necessary to accomplish this is presented for the very first time within applicant's disclosure.

In other words, a layer thickness such as recited in the present claims, including within the slots of a motor, is simply not attainable by a spray coating method without the knowledge which is disclosed for the first time by the present invention.

As one skilled in the art knows, the field lines of the electrical field that develops between the spray gun and the body being coated are concentrated at pointed protrusions of the body. Inside the slots a Faraday cage is created, which Faraday cage eliminates all field lines. Because of this, the inside of the slots could not be coated to a sufficient thickness by spraying until after the advent of applicant's invention. It is applicant's invention which has taught how slots can be coated by a spraying method.

According to the present invention, particles of a defined size, having an average diameter greater than 150 μm, are used for the spraying method. By using such coarse plastic powder, which is sprayed onto the motor armature, including within the slots, each of which forms a Faraday cage, a sufficiently large layer thickness of approximately 1.0 to 2.0 mm can be formed on both the outer circumference and also on the inner walls of the slots. It is applicant's discovery that coarse powder particles build up markedly less electrical charge on the surface of the article being coated, so that enough potential difference continues to exist between the charged particles of the spray gun and the grounded dynamo electric machine so that a sufficiently thick layer of particles can accumulate.

The use of spraying this coarse-particle plastic powder with a mean diameter of greater than150 μm, however, has not previously been known to one skilled in the art. Such knowledge was especially not taught by any of the cited references.

Quite the contrary. Until now, for the use of spray nozzles, it was only known to use markedly smaller particles with mean diameters of less than 100 μm. For this reason, the claims all clearly recite the particle size, and thus all of the claims define over the teachings of Hopeck.

While Matsuzaki et al. does disclose the use of a particle size in the range from 3 to 180 μm, the only disclosure in Matsuzaki et al. for doing any actual coating is found at column 5 lines 25-55, and is an "electrostatic fluidized bed" coating method and apparatus. Matsuzaki et al. do not use their larger particles in a spraying method.

Matsuzaki et al. mention spraying at column 2 lines 57-68, but never teach using the larger sized particles for coating by using a spraying method. The spraying which Matsuzaki et

al. mention at column 2 lines 57-68 is for checking the changeability of charge controlling particles. **It is not used for a coating process**. The only coating method or apparatus disclosed by Matsuzaki et al. is by using a fluidized bed. Matsuzaki et al. do not teach or suggest any spraying method or apparatus used for coating any elements which are at all equivalent to the dynamo electric devices recited in the claims to be coated by applicant.

In further point of fact, the Matsuzaki et al. reference points precisely away from coating by using a spraying method, since Matsuzaki et al. use a special "Charge-Controlling-Agent" (see claim 1 and column 2 lines 22-68). This "Charge-Controlling-Agent" is a multitude of particles having a diameter of 0.01 to 1 μm which are adhered to the larger particles of plastic. For technical reasons, which reasons involve the entirely different sizes between the coating particles and the charge controlling particles, the "Charge-Controlling-Agent," with its very small diameter particle size, cannot be sprayed together with the larger particles of up to 180 μm diameter by means of any known spraying methods. The two entirely differently sized particles will simply not work together in any known spraying apparatus. And this precludes the use of Matsuzaki et al. as a valid teaching for anything but a fluidized bed method of coating.

The fluidized bed coating method of Matsuzaki et al. for a motor armature is quite well known. However, as set forth in the background section of the present application, regardless of the particle size as taught by Matsuzaki et al., one skilled in the art finds no indication whatsoever, not in Matsuzaki et al., and not in any of the cited prior art, of applying plastic powder with a particle size having a diameter of greater than 150 μm to a motor armature by means of "direct powder spraying".

Therefore a combination of the cited references does not teach the particulars of the present invention, especially not as currently recited in the claims. The present invention is only realized from the prior art based on impermissible hindsight, and only with knowledge of the present invention already in hand.

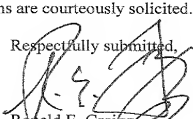
As pointed out above, claims 12, 28 and 33, plus the claims which depend on them, are therefore not anticipated, and further are not made obvious, by the cited references.

For all of the above reasons, whether taken singly or in combination with each other, entry of this amendment and allowance of the claims are courteously solicited.

The Commissioner is authorized to charge payment of a one month extension of time, or any other necessary fees in connection with this communication, to Deposit Account 07-2100.

For all of the above reasons, whether taken singly or in combination with each other, entry of this amendment and allowance of the claims are courteously solicited.

Respectfully submitted,



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